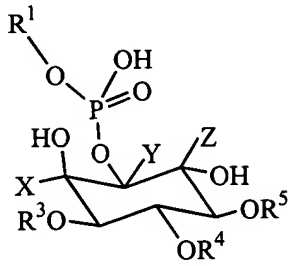
AMENDMENT

Amendments to the Claims

The present document amends claims 21, 22, 24, 25, 26, and 53, and adds claims 55-56. According to 37 C.F.R. § 1.121(c), after entry of the present amendment, the status of the claims in the case is as follows:

Claims 1-20 canceled.

21. (Currently amended) A substantially purified sphingo-phosphoinositol analogue of a phosphoinositide compound that comprises at least a first stable or radioactive isotope label within the inositol, ceramide or sphingosine residue of said phosphoinositide compound; wherein said stable or radioactive isotope label is selected from the group consisting of ^{2}H, ^{3}H, ^{32}P, ^{33}P and ^{35}S and wherein said phosphoinositide compound has the *myo*-inositol-based structure:



wherein:

R^1 = Ceramide residue or derivative ~~thereof~~ <u>of ceramide residue</u>, or

Sphingosine residue or derivative ~~thereof~~ <u>of sphingosine residue</u>;

R^3, R^4, R^5 = H or $Q(T)(OH)_2$;

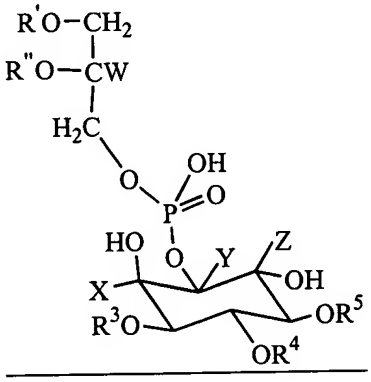
Q = P, ^{32}P or ^{33}P;

T = O, S or ^{35}S;

W, X, Y, Z = ^{2}H, ^{3}H or H; and

wherein said structure contains at least one ^{2}H, ^{3}H, ^{32}P, ^{33}P or ^{35}S as isotopic label.

22. (Currently amended) A substantially purified C-phosphonate analogue of a phosphoinositide compound that comprises at least a first stable or radioactive isotope label within the inositol or glycerol residue of said phosphonate analogue of the phosphoinositide compound; wherein said stable or radioactive isotope label is selected from the group consisting of ^{2}H, ^{3}H, ^{32}P, ^{33}P and ^{35}S and wherein said phosphoinositide compound has the *myo*-inositol-based structure:



wherein:

R', R" = fattyacyl, alkyl or H;

R^3, R^4, R^5 = H or Q(T)$(OH)_2$;

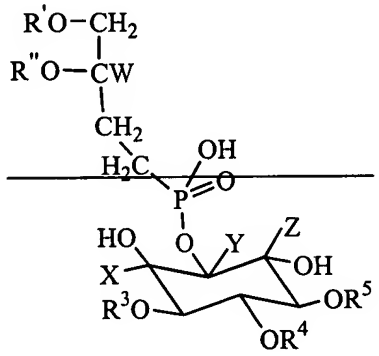
Q = P, ^{32}P or ^{33}P;

T = O, S or ^{35}S;

W, X, Y, Z = ^{2}H, ^{3}H or H; and

wherein said structure contains at least one ^{2}H, ^{3}H, ^{32}P, ^{33}P or ^{35}S as isotopic label, and wherein an O-P bond of phosphate moiety of said phosphoinositide compound structure is replaced by a C-P bond.

~~A substantially purified C-phosphonate analogue of a phosphoinositide compound that comprises at least a first stable or radioactive isotope label within the inositol or the C-phosphonate-phosphatidyl residue of said phosphoinositide compound; wherein said stable or radioactive isotope label is selected from the group consisting of ^{2}H, ^{3}H, ^{32}P, ^{33}P and ^{35}S and wherein said phosphoinositide compound has the *myo*-inositol-based structure:~~



~~wherein:~~

~~R', R" = fattyacyl, alkyl or H;~~

~~R^3, R^4, R^5 = H or Q(T)$(OH)_2$;~~

~~Q = P, ^{32}P or ^{33}P;~~

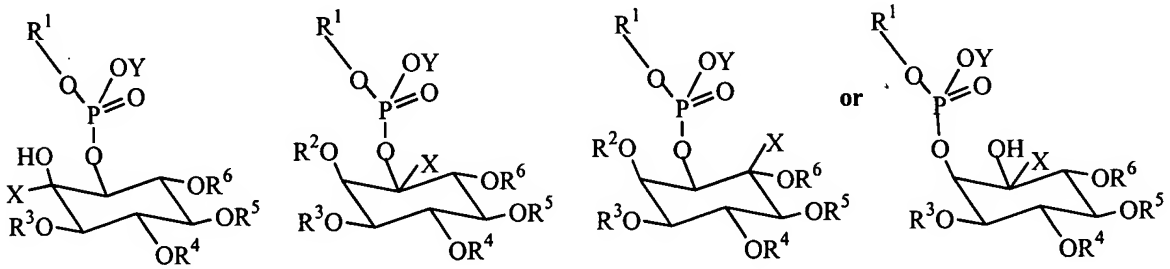
~~T = O, S or ^{35}S;~~

~~W, X, Y, Z = ^{2}H, ^{3}H or H; and~~

~~wherein said structure contains at least one ^{2}H, ^{3}H, ^{32}P, ^{33}P or ^{35}S as isotopic label.~~

23. (Original) The C-phosphonate phosphoinositide compound of claim 22, wherein said phosphoinositide compound comprises at least a first (poly)unsaturated fattyacyl residue.

24. (Currently amended) A synthetic intermediate of an isotopically labelled sphingo-phosphoinositol analogue of a phosphoinositide compound, said synthetic intermediate comprising temporary protecting groups at hydroxyl, nitrogen and phosphate positions other than the position into which the isotopic label is to be introduced; wherein said synthetic intermediate has one of the *myo*-inositol-based structures:



~~2~~ ~~3~~ ~~4~~ ~~5~~

wherein:

X = H, ^{2}H or ^{3}H; Y = alkyl, CH_3, H or (O protecting group);

R^1 = Ceramide residue or derivative ~~thereof~~ of ceramide residue, or

Sphingosine residue or derivative ~~thereof~~ of sphingosine residue;

R^3, R^4, R^5 = (OH protecting group), (Q(T)(O protecting group)$_2$),

(Q(T)(OH)(O protecting group) or (Q(T)(OH)$_2$);

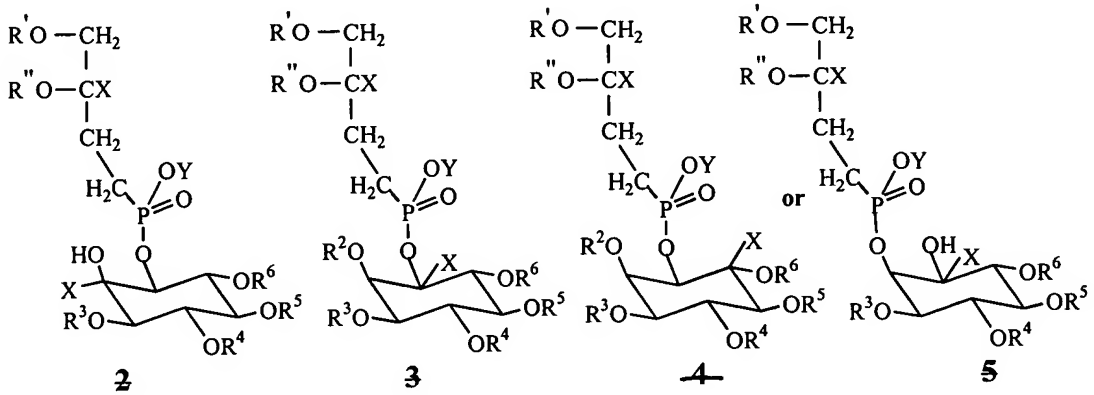
R^2, R^6 = H or (OH protecting group);

Q = P, ^{32}P or ^{33}P;

T = O, S or ^{35}S; and

wherein said structure contains at least one ^{2}H, ^{3}H, ^{32}P, ^{33}P or ^{35}S as isotopic label.

25. (Currently amended) A synthetic intermediate of an isotopically labelled C-phosphonate analogue of a phosphoinositide compound, said synthetic intermediate comprising temporary protecting groups at hydroxyl, phosphonate and phosphate positions other than the position into which the isotopic label is to be introduced; wherein said synthetic intermediate has one of the *myo*-inositol-based structures:



2 3 4 5

wherein:

X = H, ^{2}H or ^{3}H; Y = alkyl, CH_3, H or (O protecting group);

R', R" = fattyacyl, alkyl or H;

R^3, R^4, R^5 = (OH protecting group), (Q(T)(O protecting group)$_2$),

(Q(T)(OH)(O protecting group) or (Q(T)(OH)$_2$);

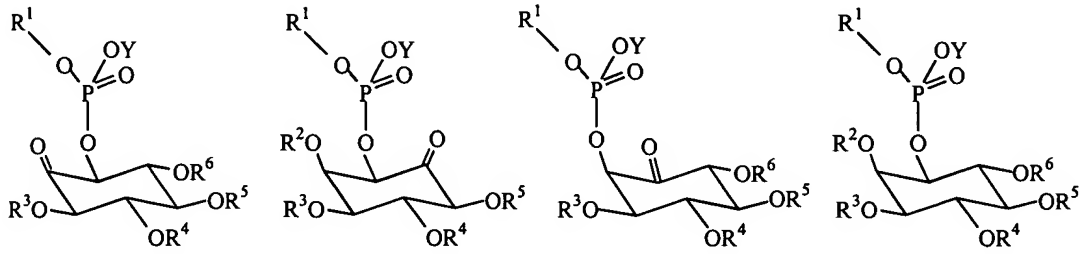
R^2, R^6 = H or (OH protecting group);

Q = P, ^{32}P or ^{33}P;

T = O, S or ^{35}S; and

wherein said structure contains at least one ^{2}H, ^{3}H, ^{32}P, ^{33}P or ^{35}S as isotopic label.

26. (Currently amended) A synthetic precursor of a synthetic intermediate of an isotopically labelled sphingo-phosphoinositol analogue of a phosphoinositide compound, wherein said synthetic precursor has a ketone group at the position into which an isotopic ^{2}H or ^{3}H label is to be introduced; wherein said synthetic precursor has one of the structures:



wherein:

Y = alkyl, CH_3 or H;

R^1 = Ceramide residue or derivative ~~thereof~~ of ceramide residue, or

Sphingosine residue or derivative ~~thereof~~ of sphingosine residue;

R^3, R^4, R^5 = (OH protecting group), (Q(T)(O protecting group)$_2$),

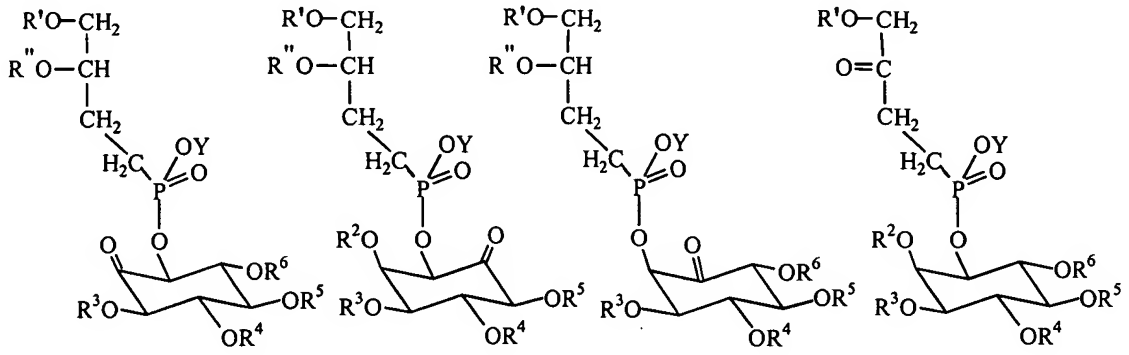
(Q(T)(OH)(O protecting group) or (Q(T)(OH)$_2$);

R^2, R^6 = H or (OH protecting group); and

Q = P, ^{32}P or ^{33}P; and

T = O, S or ^{35}S.

27. (Original) A synthetic precursor of a synthetic intermediate of an isotopically labelled C-phosphonate analogue of a phosphoinositide compound, wherein said synthetic precursor has a ketone group at the position into which an isotopic ^{2}H or ^{3}H label is to be introduced; wherein said synthetic precursor has one of the structures:



wherein:

Y = alkyl, CH_3 or H;

R', R" = fattyacyl, alkyl or H;

R^3, R^4, R^5 = (OH protecting group), (Q(T)(O protecting group)$_2$), (Q(T)(OH)(O protecting group) or (Q(T)(OH)$_2$);

R^2, R^6 = H or (OH protecting group); and

Q = P, ^{32}P or ^{33}P; and

T = O, S or ^{35}S.

28. (Original) The synthetic intermediate of claim 25, wherein said synthetic intermediate comprises at least a first (poly)unsaturated fattyacyl residue.

29. (Original) The synthetic precursor of claim 27, wherein said synthetic precursor comprises at least a first (poly)unsaturated fattyacyl residue.

30. (Original) The sphingo-phosphoinositol phosphoinositide compound of claim 21, wherein said phosphoinositide compound further comprises at least a second stable or radioactive isotope label within the ceramide or sphingosine residues of said sphingo-phosphoinositol phosphoinositide compound.

31. (Original) The C-phosphonate phosphoinositide compound of claim 22, wherein said phosphoinositide compound further comprises at least a second stable or radioactive isotope label within the alkyl or fattyacyl residues of said C-phosphonate phosphoinositide compound.

32. (Original) The sphingo-phosphoinositol phosphoinositide compound of claim 21, wherein said phosphoinositide compound has a structure based on 1D-*myo*-inositol.

33. (Original) The sphingo-phosphoinositol phosphoinositide compound of claim 21, wherein said phosphoinositide compound has a structure based on 1L-*myo*-inositol.

34. (Original) The C-phosphonate phosphoinositide compound of claim 22, wherein said phosphoinositide compound has a structure based on 1D-*myo*-inositol.

35. (Original) The C-phosphonate phosphoinositide compound of claim 22, wherein said phosphoinositide compound has a structure based on 1L-*myo*-inositol.

36. (Original) The synthetic intermediate of claim 24, wherein said synthetic intermediate has a structure based on 1D-*myo*-inositol.

37. (Original) The synthetic intermediate of claim 24, wherein said synthetic intermediate has a structure based on 1L-*myo*-inositol.

38. (Original) The synthetic intermediate of claim 25, wherein said synthetic intermediate has a structure based on 1D-*myo*-inositol.

39. (Original) The synthetic intermediate of claim 25, wherein said synthetic intermediate has a structure based on 1L-*myo*-inositol.

40. (Original) The synthetic precursor of claim 26, wherein said synthetic precursor has a structure based on 1D-*myo*-inositol.

41. (Original) The synthetic precursor of claim 26, wherein said synthetic precursor has a structure based on 1L-*myo*-inositol.

42. (Original) The synthetic precursor of claim 27, wherein said synthetic precursor has a structure based on 1D-*myo*-inositol.

43. (Original) The synthetic precursor of claim 27, wherein said synthetic precursor has a structure based on 1L-*myo*-inositol.

44. (Original) The C-phosphonate phosphoinositide compound of claim 22, wherein said phosphoinositide compound has a structure based on *sn*-glycero-3-phospho as glycerol residue.

45. (Original) The C-phosphonate phosphoinositide compound of claim 22, wherein said phosphoinositide compound has a structure based on *sn*-glycero-1-phospho as glycerol residue.

46. (Original) The C-phosphonate phosphoinositide compound of claim 22, wherein said phosphoinositide compound has a structure based on *rac*-glycero-3-phospho as glycerol residue.

47. (Original) The synthetic intermediate of claim 25, wherein said synthetic intermediate has a structure based on *sn*-glycero-3-phospho as glycerol residue.

48. (Original) The synthetic intermediate of claim 25, wherein said synthetic intermediate has a structure based on *sn*-glycero-1-phospho as glycerol residue.

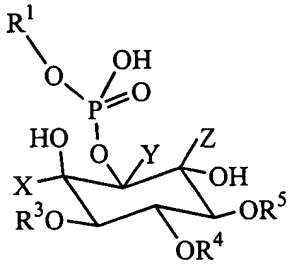
49. (Original) The synthetic intermediate of claim 25, wherein said synthetic intermediate has a structure based on *rac*-glycero-3-phospho as glycerol residue.

50. (Original) The synthetic precursor of claim 27, wherein said synthetic precursor has a structure based on *sn*-glycero-3-phospho as glycerol residue.

51. (Original) The synthetic precursor of claim 27, wherein said synthetic precursor has a structure based on *sn*-glycero-1-phospho as glycerol residue.

52. (Original) The synthetic precursor of claim 27, wherein said synthetic precursor has a structure based on *rac*-glycero-3-phospho as glycerol residue.

53. (Currently amended) A substantially purified sphingo-phosphoinositol phosphoinositide compound that comprises at least a first stable or radioactive isotope label within the inositol, ceramide or sphingosine residue of said phosphoinositide compound; wherein said stable or radioactive isotope label is selected from the group consisting of ^{2}H, ^{3}H, ^{32}P, ^{33}P and ^{35}S; wherein said phosphoinositide compound has the *myo*-inositol-based structure:



wherein:

R^1 = Ceramide residue or derivative ~~thereof~~ of ceramide residue, or

Sphingosine residue or derivative ~~thereof~~ of sphingosine residue;

R^3, R^4, R^5 = H or $Q(T)(OH)_2$;

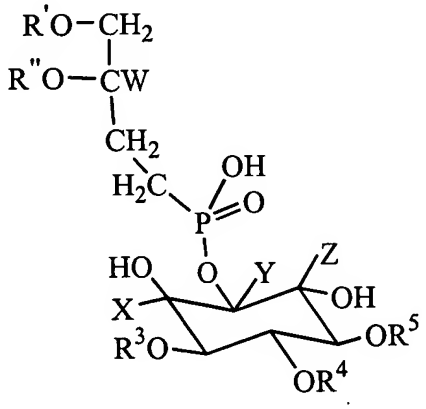
Q = P, ^{32}P or ^{33}P;

T = O, S or ^{35}S;

W, X, Y, Z = ^{2}H, ^{3}H or H; and

wherein said structure contains at least one ^{2}H, ^{3}H, ^{32}P, ^{33}P or ^{35}S as isotopic label and further comprises temporary protecting groups at hydroxyl and phosphate positions other than the position of at least a first stable or radioactive ^{2}H and ^{3}H isotope label.

54. (Original) A substantially purified C-phosphonate phosphoinositide compound that comprises at least a first stable or radioactive isotope label within the inositol or glycerol residue of said phosphoinositide compound; wherein said stable or radioactive isotope label is selected from the group consisting of ^{2}H, ^{3}H, ^{32}P, ^{33}P and ^{35}S; wherein said phosphoinositide compound has the *myo*-inositol-based structure:



wherein:

R', R" = fattyacyl, alkyl or H;

R^3, R^4, R^5 = H or $Q(T)(OH)_2$;

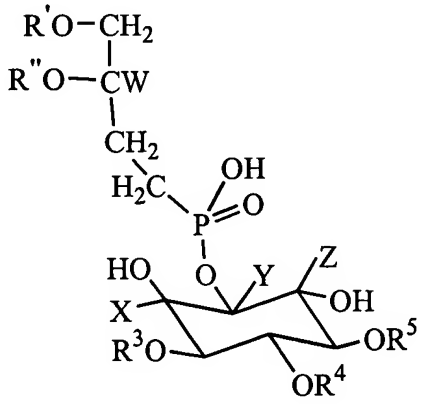
Q = P, ^{32}P or ^{33}P;

T = O, S or ^{35}S;

W, X, Y, Z = ^{2}H, ^{3}H or H; and

wherein said structure contains at least one ^{2}H, ^{3}H, ^{32}P, ^{33}P or ^{35}S as isotopic label and further comprises temporary protecting groups at hydroxyl and phosphate positions other than the position of at least a first stable or radioactive ^{2}H and ^{3}H isotope label.

55. (New) A C-phosphonate analogue phosphoinositide compound of claim 22 wherein the O-P bond link to glycerol in phosphoinositide structure is replaced by a C-P bond, and wherein the said C-phosphonate analogue phosphoinositide compound has the structure:



wherein:

R', R" = fattyacyl, alkyl or H;

R^3, R^4, R^5 = H or $Q(T)(OH)_2$;

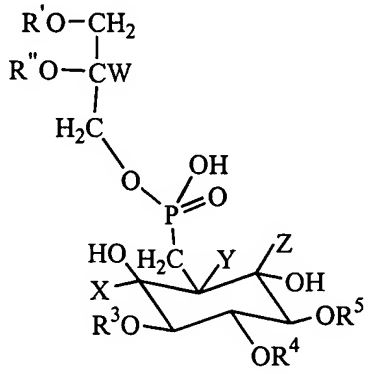
Q = P, ^{32}P or ^{33}P;

T = O, S or ^{35}S;

W, X, Y, Z = ^{2}H, ^{3}H or H; and

wherein said structure contains at least one ^{2}H, ^{3}H, ^{32}P, ^{33}P or ^{35}S as isotopic label.

56. (New) A phosphonate analogue phosphoinositide compound of claim 55 wherein the O-P bond link to inositol in phosphoinositide structure is replaced by a C-P bond, and wherein the said phosphonate analogue phosphoinositide compound has the structure:



wherein:

R', R" = fattyacyl, alkyl or H;

R^3, R^4, R^5 = H or $Q(T)(OH)_2$;

Q = P, ^{32}P or ^{33}P;

T = O, S or ^{35}S;

W, X, Y, Z = ^2H, ^3H or H; and

wherein said structure contains at least one ^2H, ^3H, ^{32}P, ^{33}P or ^{35}S as isotopic label.